CLAIMS

1. A process for the preparation of perfluoropolyethers having at least one -COF end group of formula:

$$T\text{-}CFX'\text{-}O\text{-}R_f\text{-}CFX\text{-}COF \qquad (I)$$

wherein:

T is equal to COF, F, C_1-C_3 perfluoroalkyl;

X, X', equal to or different from each other, are F or $-CF_3$;

R_f is selected from:

- $-(C_2F_4O)_m(CF_2CF(CF_3)O)_n(CF_2O)_p(CF(CF_3)O)_q-$

  wherein:

  the sum n+m+p+q ranges from 2 to 200,

  the (p+q)/(m+n+p+q) ratio is lower than or equal to 10:100, preferably comprised between 0.5:100 and 4:100,

  the n/m ratio ranges from 0.2 to 6, preferably from 0.5 to 3;

  m, n, p, q, are equal to or different from each other and when m, n range from 1 to 100, preferably from 1 to 80, then p, q range from 0 to 80, preferably from 0 to 50;

  the units with n, m, p, q indexes being statistically distributed along the chain,

- $-(CF_2CF_2CF_2O)_r-$

wherein r ranges from 2 to 200,

- $-(CF(CF_3)CF_2O)_s-$

wherein s ranges from 2 to 200,

by reduction of the corresponding perfluoropolyethers containing peroxidic bonds, using gaseous hydrogen in the presence of a catalyst comprising metals of the VIII group supported on metal fluorides, optionally in the presence of perfluorinated solvents inert at a temperature from 20°C to 140°C, preferably from 80°C to 130°C and at a pressure between 1 and 50 atm, preferably between 1 and 10 atm.

2. A process according to claim 1, wherein R_f is selected in the group formed by:

$-(CF_2CF_2O)_m-(CF_2O)_p-$,

$-(CF_2CF(CF_3)O)_n-(CF_2O)_p-(CF(CF_3)O)_q$

3. A process acording to claims 1-2, wherein the metal of the VIII group is Pd, Pt, Rh, preferably Pd.

4. A process according to claims 1-3, wherein the metal fluoride is selected in the group consisting of CaF_2, BaF_2, MgF_2, AlF_3, preferably CaF_2.

5. A process according to claims 1-4, wherein the concentration of the VIII group metal on the metal fluoride is comprised beteeen 0.1% and 10% with respect to the catalyst total weight, preferably between 1% and

2% by weight.

6. A process according to claims 1-5, wherein the used catalyst amount is in the range 1%-10%, preferably 1%-5% by weight with respect to the peroxidic perfluoropolyether.